

INTERPRETATION OF RESULTS

It is seen that this surgery had high overall success rate of (91%) which is comparable between both primary and secondary groups. The success is maintained at medium and long term follow up although numbers in long term follow up group is small.

Rate of Voiding dysfunction is high in immediate postoperative period but drops significantly at 1 year follow up with only 7% patient needing to perform CISC at > 2 years follow up overall and only 2% in our tension free primary slings

CONCLUDING MESSAGE

With growing concerns around mesh use for SUI surgery, use of AFS for primary and secondary SUI has been increasing.

The low long-term risk of self-catheterisation especially in the primary group with non-obstructive slings is reassuring and will aid counselling of patients opting for AFS as primary SUI procedure.

FIGURE 1

	Short term (<1 year)	Medium term (1-5 years)	Long term (>5 years)
Overall	91.3% (n=115)	91.8% (n=110)	90% (n=41)
Primary	91.5% (n=59)	91% (n=57)	82.4% (n=17)
Secondary	91% (n=56)	92.5% (n=53)	96% (n=24)

Table 1: Success rates of AFS surgery

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FIGURE 2

		at 3 months n (%)	at 1 year n (%)	at 2 year n (%)	>2 years n (%)
Total (n=101)		43 (44%)	18 (18%)	12 (11%)	7 (7%)
Primary (n=48)	Obstructive (3)	3 (100%)	3 (100%)	2 (67%)	1 (33%)
	Non-obstructive (45)	18 (40%)	5 (11%)	1 (2%)	1 (2%)
Secondary (n=53)	Obstructive (16)	9 (56%)	4 (25%)	3 (19%)	2 (12.5%)
	Non-obstructive (37)	13 (35%)	6 (16%)	6 (16.2%)	3 (8%)

Table 2: Rates of de novo postoperative voiding dysfunction in 2 groups

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ELECTROMYOGRAPHY OF PELVIC FLOOR MUSCLES IN THE SQUAT WITH WEIGHT IN WOMEN WITH AND WITHOUT URINARY INCONTINENCE

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HYPOTHESIS / AIMS OF STUDY

Urinary incontinence (UI) among young women is more frequent when they practice impact and high intensity activities as in squat, for example. A method to evaluate the muscle performance of the pelvic floor muscles (PFM) is the electromyography (EMG). This technique is confiable, can be used to verify the muscle behavior objectively and allows the evaluation during movement(1). However, until our present knowledge, it has not been evaluated for the PFM electrical activity during the movement of squat with weight. Innovatively, the aim of this study consists in comparing the pelvic floor muscles electrical activity on the squat with weight among women with and without urinary incontinence.

STUDY DESIGN, MATERIALS AND METHODS

This is a cross-sectional exploratory study, done in women between the ages of 18 and 60. Initially, the participants answered a basic anamnesis that contained sociodemographic data, followed by the application of the International Consultation on Incontinence Questionnaire (ICIQ-SF) to identify the presence or absence of UI so the participants could be divided into two groups: women incontinent (GI) and women continent (GC). Pregnant women, women with chronic degenerative disease that would not allow assessment of

the perineal musculature and orthopedic ou neurological self-reported variation were excluded from the study.

The participants of the study were submitted to assessment of the PFM by digital touch (muscle strength Oxford 0 to 5) and to an EMG during the squat. The load of the squat was determined by the 1MR test (1 maximum repetition). The EMGs electrodes were fixed on the perianal zone, at 2 and 8 o'clock (position in the analog watch) for signal capture, modified to avoid contact between the connectors. A distance of 2cm between them was applied, following the recommendations of SENIAM, and a reference electrode was placed on the collarbone.

The capture and record of the electrical activity of the PFM were carried out through the data acquisition system, which uses surface electromyography sensors (SES), device New Miotool Uro™ USB/Wireless with 8 channels, from the company Miotec®. The goniometer GN360 was used to register the knee movement, connected to the electromyography device. The software used was the MiotecSuit 1.0 (Miotec®, Porto Alegre, RS, Brasil), applied for data acquisition. The following signals were captured: basal EMG; maximal voluntary contraction capacity (MVC) and sustained contraction capacity. The way to request the contraction (fast or sustained) is similar to the PERFECT test, dorsal decubitus and at rest. Shortly thereafter, these same measures were repeated in orthostasis. The maximum sustained time was 10 seconds. Between the single measures was given a 15 seconds rest time (3). After the EMG captures at dorsal decubitus and at orthostasis, the participants squatted 10 times, carrying the barbell weight corresponding to 70% of 1MR (figure A). No guidance towards the contraction or not of the PFM was passed during the squat.

The data were analysed by the SPSS, version 14.1 for Windows. For normality data, descriptive statistics and Shapiro-Wilk tests were performed. For the continuous variables of normal distribution, mean and standard deviation (SD) and asymmetric distribution, median and interquartile range (IQR). The categorical variables were presented in absolute number and frequency (%). For comparison of the EMG at different moments of the squat, ANOVA of repeated measures was applied. Intergroup analysis at different knee amplitude were done through T test independent or Mann-Whitney. The comparison of sociodemographic and clinical variables requested the chi-squared test for categorical and numerical variables, T test ou Mann-Whitney. The statistical significance was defined as $p < 0,05$. This study was approved by the Research Ethics Committee and all participants signed the Informed Consent Form.

RESULTS

Totally, 49 women were analysed, whose 23 had UI. The endurance related PFM maintained contraction values, evaluated by the PERFECT scheme, presented durations < 6 sec-

onds, classified as weak to moderate resistance (G1: 87% and G2: 76.9% of participants) ($p = 0.47$). Regarding the perineal awareness, 89,4% of 49 women had conscient perineal contraction on the first attempt, however, more than 70% of these women, both G1 and G2, used accessory muscles concomitantly with the PFM contraction. There was no statistical difference ($p > 0,05$) between these two groups. The FM degree was grade 3 (moderate) and 4 (good) ($p = 0.41$), varying between 60 and 75% of the studied population. Also, more than 80% of women had no PFM activating difficulty ($p = 0,42$).

In the squat kinetics analysis, it was noticed a higher peak of electrical activity when squatting, observed by visual inspection in both groups, without significant difference ($p = 0,84$), when the PFM in the three movement moments EMG values, expressed on mean, were compared. There was no activation difference during the squat with weight, considering the group stratification, when the PFM electromyography values were compared. In other words, the continent group did not show difference when compared to the group with IUE and also to the group with other types of incontinence ($p = 0,70$). Similarly, intragroup values were higher in the moment of the squat.

INTERPRETATION OF RESULTS

PFM behaved similarly among both women groups, ass did performance and PFM muscle strength. The mean EMG values comparing initial and final moments were similar, without difference among PFM on women with and without urinary incontinence. Therefore, the PIA increase, during the initial or final moment, even with overload, in orthostasis, probably does not activate the PF muscles. That is why we cannot affirm if there is or not urine loss during the effort of squatting with overload in symptomatic women in the present study. For this objective analyses, it would require the comparison between the pretest and posttest using an absorbents. We suggest that future studies must adapt this PFM evaluation methodology for women with SUI, during the impact activity and associated to the absorbents test (stress test).

CONCLUDING MESSAGE

The pelvic floor muscles electrical signal at different moments of squatting with weight did not present any activation variability among the groups with and without UI. Hence, we cannot affirm there is association between PFM electrical activity or it's performance as a cause of urinary incontinence.